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expert assistance is required, the services of a competent professional
person should be sought.

Lucent

(Lucent Technologies, Murray Hill, NJ, www.lucent.com) A major manufacturer of telecommunications equipment. Lucent makes telephones and telephone systems, large telephone switching computers and integrated circuits and optoelectronics components for communications and computer applications.

The company has a long history in the telecom arena. Its roots go back to 1869 when Elisha Gray and Enos Barton founded Gray and Barton in Cleveland, Ohio, a company that provided parts and models for inventors such as Gray himself. Gray and Barton was later renamed Western Electric Company when Western Union, its major customer, became an investor.

In 1881, American Bell Telephone purchased controlling interest in Western Electric, which became the manufacturing arm of the Bell companies. In 1899, AT&T, which was created 14 years earlier, took over American Bell and Western Electric. In 1925, the already-combined engineering departments of Western Electric and AT&T were turned into Bell Labs, which has become world famous for its research.

Lucent Has History
Although a new company in 1996. Lucent goes way back, spawning Bell Labs and Graybar Electric and inventing and/or developing some of the most important technologies in the western world *(Photo courtesy of Lucent Technologies.)*

A year later, Western Electric spun off its electrical distribution operations as Graybar Electric Company, which became the first large company to be bought out by its own employees.

Over the years, the company ushered in the electronic age by developing the vacuum tube. It also invented the loudspeaker, brought sound to motion pictures and introduced mobile communications, the forerunner of today's cellular system. When AT&T was divested of its Bell operating companies in 1984, Western Electric remained with AT&T, but was soon split up into a variety of divisions, including Network Systems, which builds the major switching and telecom equipment. When spun off from AT&T in 1996, Lucent retained all of AT&T's manufacturing units as well as Bell Labs.

lumen

A unit of measurement of the flow (rate of emission) of light. A wax candle generates 13 lumens; a 100 watt bulb generates 1,200 See *candela*
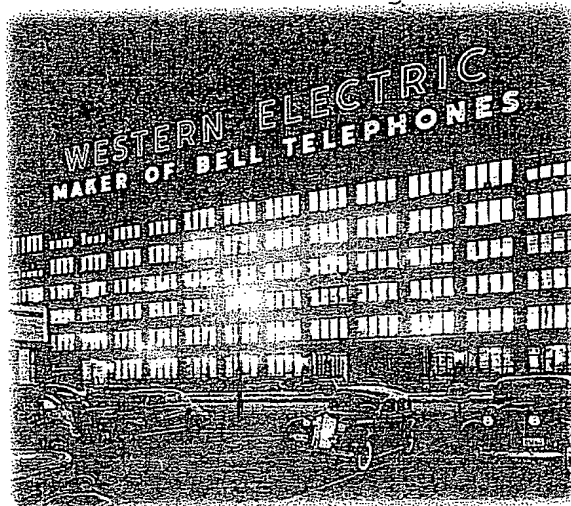
Lumena

A paint and animation program from Western Imaging, Inc., Cloverdale, CA, (www.lumena.com) that runs on DOS, Mac, OS/2 and UNIX. Lumena provides very sophisticated special effects combining analog and digital video and is often used in TV production applications. Lumena was originally developed by Time Arts.

luminance

The amount of brightness, measured in lumens, that is given off by a pixel or area on a screen. It is the black/gray/white information in a video signal.

LUN

(Logical Unit Number) The physical number of a device in a daisy chain of drives See *SCSI*

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(Lempel-; and Abraham repeating phr version of the hardware and See *PNG*.

Computer Desktop Encyclopedia

Computei

each virtual machine. This is not the same as the 386's virtual memory mode, which extends main
memory to disk.

virtual circuit
(1) A temporary communications path created between devices in a switched communications system.
For example, a message from New York to Los Angeles may actually be routed through Atlanta and St
Louis. Within a smaller geography, such as a building or campus, the virtual circuit traverses some
number of switches, hubs and other network devices.

(2) A shared circuit that appears private to the users that are communicating with each other. See *PVC*
and *SVC*.

virtual company, virtual corporation
An organization that uses computer and telecommunications technologies to extend its capabilities by
working routinely with employees or contractors located throughout the country or the world. Using
faxes, modems, data and videoconferencing, it implies a high degree of telecommuting as well as remote
workgroups and facilities.

The extreme virtual company is one that hires only temporary help and whose office facilities are little
more than a post office box and answering machine. See *hoteling*.

virtual connection
A temporary connection made between two nodes.

virtual desktop
An infinitely-large desktop, which is provided either by a virtual screen capability or a shell program
that enhances the user interface. See *virtual screen*.

virtual device
See *virtual peripheral* and *VxD*.

virtual device driver
See *VxD* and *VDI*.

virtual disk
See *volume set* and *RAM disk*.

virtual display
A display technology that creates a full
screen image in a small space. It enables a
hand-held device, such as a pager or hand-held
fax machine, to simulate a desktop monitor.
See *Private Eye*, *virtual monitor* and *virtual
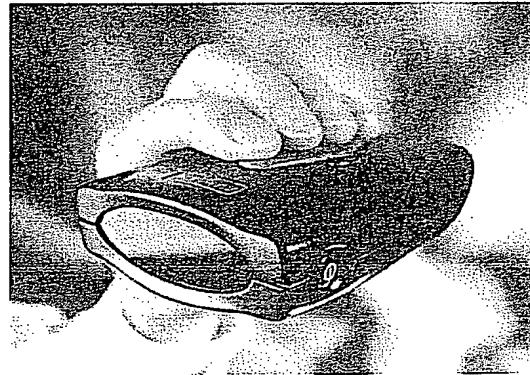screen*.

virtual function
In object technology, a function that has a
default operation for a base class, but which
can be overridden and perform a different
operation by a derived class. A derived class
inherits the attributes (data) and methods
(processing) of a higher-level class.

virtual host
On the World Wide Web, a server that
contains multiple Web sites, each with its own domain name. As of the first version of the Web protocol
(HTTP 1.0), each Web site on a virtual host must be assigned a unique IP address. HTTP Version 1.1
eliminates this requirement. See *virtual server*.

virtual image
In graphics, the complete graphic image stored in memory, not just the part of it that is displayed at
the current time.

FaxView Virtual Display
Reflection Technology's portable fax machine
weighs eight ounces. works with most cell phones
and stores 25 pages. Its virtual display simulates
a 12" monitor and its "virtual keyboard" (lever and
buttons on the unit) lets you select menu options
(Photo courtesy of Reflection Technology, Inc.)

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·hysical LAN segment

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virtual network
An interconnected group of networks (an internet) that appear as one large network to the user. Optionally, or perhaps ideally, a virtual network can be centrally managed and controlled.

Banyan Systems, creator of VINES, which stands for VIrtual NEtworking System, defines virtual networking as "the ability for users to transparently communicate locally and remotely across similar and dissimilar networks through a simple and consistent user interface." See *virtual LAN*.

virtual operating system
An operating system that can host other operating systems. See *virtual machine*.

virtual peripheral
A peripheral device simulated by the operating system.

virtual printer
A simulated printer. If a program is ready to print, but all printers are busy, the operating system will transfer the printer output to disk and keep it there until a printer becomes available.

virtual processing
A parallel processing technique that simulates a processor for applications that require a processor for each data element. It creates processors for data elements above and beyond the number of processors available.

virtual processor
A simulated processor in a virtual processing system.

virtual reality
An artificial reality that projects the user into a 3-D space generated by the computer. True virtual reality systems require the use of a unique kind of glove, called a *data glove*, and stereoscopic goggles, which are both wired to the computer. The glove lets users point to and manipulate computer-generated objects that are displayed on tiny monitors inside the goggles.

Virtual reality, or VR, can be used to create any illusion of reality or imagined reality and is used both for entertainment and training. Virtual reality has been around for some time now. For example, flight simulators, used to train airplane pilots and astronauts, have provided a very realistic simulation of the environment, albeit extremely expensive.

A variation of virtual reality, known as unencumbered virtual reality or computer automatic virtual environment (CAVE), is becoming popular for entertainment. For example, using a glove, but not goggles, you can play a simulated ballgame such as volley ball or basketball. A video camera captures your movements while you watch yourself on a large screen. You hit a simulated ball that is passed to you by your on-screen opponent and play the game as if it were real.
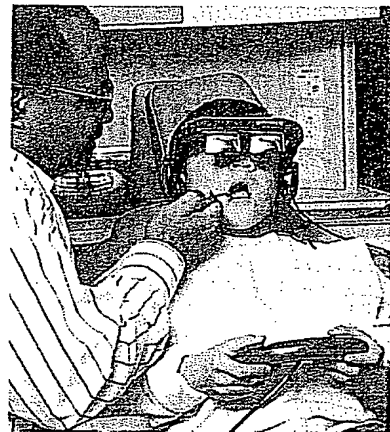
The term is also used for computer games and interactive environments on the Web that allow you to move from one room or area to another. They of course lack the 360 degree reality that comes from wearing the glove and goggles. See *HMD, CAVE, 6DOF, cyberspace* and *VRML*.

Virtual Reality at the Dentist
In this application, the child is looking through the goggles and manipulating the scenes that he sees with a game controller. *(Photo courtesy of Virtual I-O.)*

virtual root
A root directory that points to another root directory. It allows one root directory to be consistently named although the physical location may change. See *PURL*. See also *virtual circuit*.
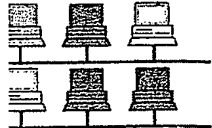
virtual route
Same as *virtual circuit*.